What is claimed is:

1. An electromagnetic radiation immune tissue invasive delivery system, comprising:

a photonic lead having a proximal end and a distal end;

a storage device, located at the proximal end of said photonic lead, to store a therapeutic substance to be introduced into a tissue region;

a delivery device to delivery a portion of the stored therapeutic substance to a tissue region;

a light source, in the proximal end of said photonic lead, to produce a first light having a first wavelength and a second light having a second wavelength;

a wave-guide between the proximal end and distal end of said photonic lead;

a bio-sensor, in the distal end of said photonic lead, to sense characteristics of a predetermined tissue region;

a distal sensor, in the distal end of said photonic lead, to convert the first light into electrical energy and, responsive to said bio-sensor, to reflect the second light back the proximal end of said photonic lead such that a characteristic of the second light is modulated to encode the sensed characteristics of the predetermined tissue region;

a proximal sensor, in the proximal end of said photonic lead, to convert the modulated second light into electrical energy; and

a control circuit, in response to said electrical energy from said proximal sensor, to control an amount of the stored therapeutic substance to be introduced into the tissue region.

2. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein said light source includes a first emitter to emit the first light having the first wavelength and a second emitter to emit the second light having the second wavelength.

3. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein said light source includes a first laser to produce the first light having the first wavelength and a second laser to produce the second light having the second wavelength.

4. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein said distal sensor includes:

an optical attenuator coupled to a mirror; and

an optical-electrical conversion device to convert the first light into electrical energy;

said optical attenuator attenuating the second light to encode the sensed characteristics of the predetermined tissue region.

5. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 4, wherein said optical attenuator attenuating the second light to create pulses of light having equal intensity and periods of no

light, the periods of no light differing in time in response to the sensed characteristics of the predetermined tissue region.

6. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 4, wherein said optical attenuator attenuating the second light to create light having differing intensities over a period of time.

7. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 4, further comprising:

a beam splitter to direct the second light to said optical feedback device and to direct said first light to said optical-electrical conversion device.

8. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 4, wherein said optical attenuator comprises liquid crystal material having a variable optical transmission density responsive to applied electrical voltage.

9. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein said distal sensor includes:

a variable reflectance optical reflector; and

an optical-electrical conversion device to convert the first light into electrical energy;

said variable reflectance optical reflector variably reflecting the second light to encode the sensed characteristics of the predetermined tissue region.

10. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 9, wherein said variable reflectance optical reflector variably reflecting the second light to create pulses of light having equal intensity and periods of no light, the periods of no light differing in time in response to the sensed characteristics of the predetermined tissue region.

11. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 9, wherein said variable reflectance optical reflector variably reflecting the second light to create light having differing intensities over a period of time.

12. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 9, further comprising:

a beam splitter to direct the second light to said variable reflectance optical reflector and to direct said first light to said optical-electrical conversion device.

13. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein said distal sensor includes an optical-electrical conversion device to convert the first light into electrical energy and a variable reflectance optical reflector overlaying said optical-electrical conversion device;

said variable reflectance optical reflector variably reflecting the second light to encode the sensed characteristics of the predetermined tissue region and being optically transparent to said first light.

14. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 14, wherein said variable reflectance optical reflector variably reflecting the second light to create pulses of light having equal intensity and periods of no light, the periods of no light differing in time in response to the sensed characteristics of the predetermined tissue region.

15. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 14, wherein said variable reflectance optical reflector variably reflecting the second light to create light having differing intensities over a period of time.

16. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein the sensed characteristic is an ECG signal.

17. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 16, wherein the stored therapeutic substance is a cardiac stimulating substance.

18. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 16, wherein the stored therapeutic substance is a blood thinning substance.

19. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein the sensed characteristic is glucose level.

20. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 19, wherein the stored therapeutic substance is insulin.

21. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein the sensed characteristic is a hormone level.

22. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 21, wherein the stored therapeutic substance is estrogen.

23. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 21, wherein the stored therapeutic substance is progesterone.

24. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 21, wherein the stored therapeutic substance is testosterone.

25. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein the sensed characteristic is a cholesterol level.

26. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein said wave-guide is a fiber optic.

27. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein said wave-guide includes a first fiber optic to transmit the first light and a second fiber optic to transmit the second light.

28. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, wherein said wave-guide is a bundle of fiber optics.

29. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 1, further comprising:

a housing to house said storage device, said delivery device, and said control circuit;

said housing including,

a shielding formed around said housing to shield components within said housing from electromagnetic interference, and

a biocompatible material formed around said shielding.

30. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 29, wherein said shielding is a metallic sheath.

31. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 29, wherein said shielding is a carbon composite sheath.

32. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 29, wherein said shielding is a polymer composite sheath.

33. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 29, wherein said biocompatible material is a non-permeable diffusion resistant biocompatible material.

34. An electromagnetic radiation immune tissue invasive delivery system, comprising:

a photonic lead having a proximal end and a distal end;

a storage device, located at the proximal end of said photonic lead, to store a therapeutic substance to be introduced into a tissue region;

a delivery device to delivery a portion of the stored substance to a tissue region;

a light source, in the proximal end of said photonic lead, to produce a first light having a first wavelength and a second light having a second wavelength;

a wave-guide between the proximal end and distal end of said photonic lead;

a bio-sensor, in the distal end of said photonic lead, to sense characteristics of a predetermined tissue region;

a distal sensor, in the distal end of said photonic lead, to convert the first light into electrical energy and, responsive to said bio-sensor, to emit a second light having a second wavelength to proximal end of said photonic lead such that a characteristic of the second light is modulated to encode the sensed characteristics of the predetermined tissue region;

a proximal sensor, in the proximal end of said photonic lead, to convert the modulated second light into electrical energy; and

a control circuit, in response to said electrical energy from said proximal sensor, to control an amount of the stored therapeutic substance to be introduced into the tissue region.

35. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein said light source includes a laser to produce the first light having the first wavelength and said distal sensor includes a second laser to produce the second light having the second wavelength.

36. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein said distal sensor includes:

an emitter to produce the second light having the second wavelength; and

an optical-electrical conversion device to convert the first light into electrical energy;

said emitter modulating the second light to encode the sensed characteristics of the predetermined tissue region.

37. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 36, wherein said emitter modulating the second light to create pulses of light having equal intensity and periods of no light, the periods of no light differing in time in response to the sensed characteristics of the predetermined tissue region.

38. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 36, wherein said emitter modulating the second light to create light having differing intensities over a period of time.

39. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein said distal sensor includes:

an on-axis emitter to produce the second light having the second wavelength; and

an on-axis optical-electrical conversion device to convert the first light into electrical energy;

said on-axis emitter modulating the second light to encode the sensed characteristics of the predetermined tissue region.

40. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein said on-axis emitter modulating the second light to create pulses of light having equal intensity and periods of no light, the periods of no light differing in time in response to the sensed characteristics of the predetermined tissue region.

41. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein said on-axis emitter modulating the second light to create light having differing intensities over a period of time.

42. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein said distal sensor includes:

an off-axis emitter to produce the second light having the second wavelength; and

an on-axis optical-electrical conversion device to convert the first light into electrical energy;

said off-axis emitter modulating the second light to encode the sensed characteristics of the predetermined tissue region.

43. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 42, wherein said off-axis emitter modulating the second light to create pulses of light having equal intensity and periods of no light, the periods of no light differing in time in response to the sensed characteristics of the predetermined tissue region.

44. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 42, wherein said off-axis emitter modulating the second light to create light having differing intensities over a period of time.

45. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 42, further comprising:

a beam splitter to direct the second light to said wave-guide and to direct said first light to said on-axis optical-electrical conversion device.

46. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, further comprising:

an on-axis proximal sensor, in the proximal end of said photonic lead, to convert the modulated second light into electrical energy.

47. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, further comprising:

an on-axis proximal sensor, in the proximal end of said photonic lead, to convert the modulated second light into electrical energy;

said light source being on-axis.

48. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, further comprising:

an off-axis proximal sensor, in the proximal end of said photonic lead, to convert the modulated second light into electrical energy.

49. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, further comprising:

an on-axis proximal sensor, in the proximal end of said photonic lead, to convert the modulated second light into electrical energy;

said on-axis proximal sensor being optically transparent to the first light.

50. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein the sensed characteristic is an ECG signal.

51. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 50, wherein the stored therapeutic substance is a cardiac stimulating substance.

52. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 50, wherein the stored therapeutic substance is a blood thinning substance.

53. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein the sensed characteristic is glucose level.

54. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 53, wherein the stored therapeutic substance is insulin.

55. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein the sensed characteristic is a hormone level.

56. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 55, wherein the stored therapeutic substance is estrogen.

57. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 55, wherein the stored therapeutic substance is progesterone.

58. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 55, wherein the stored therapeutic substance is testosterone.

59. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein the sensed characteristic is a cholesterol level.

60. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein said wave-guide is a fiber optic.

61. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, wherein said wave-guide includes a first fiber

optic to transmit the first light and a second fiber optic to transmit the second light.

62. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 34, further comprising:

a housing to house said storage device, said delivery device, and said control circuit;

said housing including,

a shielding formed around said housing to shield components within said housing from electromagnetic interference, and

a biocompatible material formed around said shielding.

63. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 62, wherein said shielding is a metallic sheath.

64. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 62, wherein said shielding is a carbon composite sheath.

65. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 62, wherein said shielding is a polymer composite sheath.

66. The electromagnetic radiation immune tissue invasive delivery system as claimed in claim 62, wherein said biocompatible material is a non-permeable diffusion resistant biocompatible material.